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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/626,792

07/24/2003

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CIS0192US

1225

33031 7590 03/30/2010
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EXAMINER

RUTKOWSKI, JEFFREY M

ART UNIT

PAPER NUMBER

2473

MAIL DATE

DELIVERY MODE

03/30/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/626,792	Applicant(s) CHERITON, DAVID R.	
	Examiner JEFFREY M. RUTKOWSKI	Art Unit 2473	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-10,17-45,47-59,61-72,74-81,83,85 and 87-93 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-6,9,10,17,18,23,24,27-39,42,44,45,47-59,61-72, 74-81,83,85 and 87-92 is/are rejected.
- 7) ☒ Claim(s) 7,8,19-22,25,26,40,41,43 and 93 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 2-3, 11-16, 46, 60, 73, 82, 84 and 86 have been cancelled.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/23/2010 has been entered.

Claim Objections

2. **Claim 18** is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. According to **claim 1**, the bit entry fields are used to designate each DPM as current or previous.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claims 1, 4-10, 17-45, 47-59, 61-72, 74-81, 83, 85 and 87-93** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. The term "substantially equal" in **claims 1, 36, 55, 68 and 81** is a relative term which renders the claim indefinite. The term "substantially equal" is not defined by the claim, the

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specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. **Claims 68-72 and 74-80** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The computer-readable storage medium would include signals because the specification does not limit the scope of the computer readable storage medium to non-transitory embodiments (see paragraph 0067). The Examiner suggests changing the "computer-readable storage medium" to "non-transitory computer-readable storage medium".

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. **Claims 1, 4-6, 9-10, 17-18, 23, 27-30, 36-39, 42, 44-45, 47-49, 55-59, 61-63, 68-72 and 74-76** are rejected under 35 U.S.C. 103(a) as being unpatentable over Aguilera et al. (US Pg Pub 2005/0022009), hereinafter referred to as Aguilera, in view of Milliken (US Pg Pub 2003/0115485) and Cornett, JR et al. (US Pg Pub 2003/0189916), hereinafter referred to as Cornett.

11. For **claims 1, 36, 55, 68 and 81**, Aguilera suggests *a duplicate packet map (DPM)* (bit arrays **26, 28 and 30**; see figure 2), *wherein said DPM comprises first DPM field (epoch 7831) comprising a first plurality of bit entries* (bit array **28** is assigned to epoch 7831; see figure 2), *a second DPM field (epoch 7832) comprising a second plurality of bit entries* (bit array **26** is assigned to epoch 7832; see figure 2), *said first DPM field is designated as a previous time interval field* (epoch 7831 is the previous time interval; see paragraph 0016), *said second DPM field is designated as a current time interval field* (epoch 7832 is the current time interval; see paragraph 0016), *said previous time interval field corresponds to a previous time interval, said current time interval field corresponds to a current time interval* (the epochs are time intervals; see paragraph 0016), *said previous time interval occurs before said current time interval* (epoch 7831 preceded epoch 7832; see paragraph 0016), *said previous time interval is distinct from said current time interval* (Aguilera suggests the epochs are distinct because each epoch is assigned a distinct identifier; see figure 2) *and a DPM bank (bloom filter), wherein said DPM bank is configured to store a plurality of DPMs and said plurality of DPMs comprises said DPM* (the bit arrays **26, 28 and 30** are stored in a bloom filter; see paragraph 0016).

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12. Aguilera discloses *a packet summary value (PSV) generator* (CPU **62** executing software code; see paragraph 0027), *wherein said DPM (bloom filter) is coupled to said PSV generator* (the bit arrays **26, 28 and 30** of the bloom filter are stored in RAM **66**; see paragraph 0027.

Figure 5 shows CPU **62** is coupled to RAM **66**), *said PSV generator is configured to, responsive to receiving a packet, generate a hash value* (see paragraph 0017). Aguilera does not disclose the source of the hashed value. Milliken discloses a hash value that is generated by *extracting data from said packet* (hash values are generated from the payload of a packet; see paragraph 0046), *and calculate a PSV using said data from said packet by virtue of being configured to generate hashed data by hashing said data from said packet using a hashing function* (the payload is used to generate a hash value; see paragraph 0046), *wherein said PSV corresponds to said hashed data, said DPM is configured to receive said PSV* (the hash values are stored in hash memory **320**; see paragraph 0050). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use Milliken's hashing method in Aguilera's invention to detect network worms and viruses (Milliken, title).

13. Aguilera discloses each epoch is based on the current time and previous time interval (see paragraph 0015). Aguilera does not disclose epochs that have the same interval durations.

Cornett discloses *said previous time interval is substantially equal in duration to said current time interval* (figure 3 shows epochs that have the same interval duration). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use substantially equivalent duration time intervals in Aguilera's invention to establish traffic channels (Cornett, title).

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14. Specifically for **claim 55**, Aguilera discloses *a processor (CPU 62; see figure 5); a computer readable medium (RAM 66 and ROM 64) coupled to said processor (figure 5 shows the CPU 62, RAM 66 and ROM 64 are coupled); and computer code (software code), encoded in said computer readable medium (the software code is encoded in the ROM 64; see paragraph 0027).*

15. For **claims 4 and 17**, Aguilera discloses *wherein said DPM (bit arrays 26, 28 and 30; see figure 2) is implemented as a Bloom filter (the bit arrays 26, 28 and 30 are part of a bloom filter; see paragraph 0016).*

16. For **claim 5**, Aguilera discloses *wherein a bit entry of each said first and second DPM fields corresponds to said PSV (each bit in the bit arrays corresponds to a hash value; see paragraph 0017 and figure 3 step 46).*

17. For **claim 6**, Aguilera discloses *said PSV comprises a third plurality of bit entries (the hash value can have any number of bit entries; see figure 3 item 42), and each bit entry of said first and second DPM fields corresponds to a bit in said third plurality of bit entries of said PSV (each bit of the hash function corresponds to a bit in the bit arrays; see figure 3 item 46).*

7. For **claims 9 and 29**, Aguilera discloses the use of hashing functions (see paragraph 0012). Aguilera does not disclose the use of CRC checks. Milliken discloses *said PSV generator (hash processor 310) is configured to calculate said PSV using a cyclic redundancy check (CRC) calculation (the hashing algorithms used by the hash processor 310 include CRC; see paragraph 0047) and said data from said packet is path-independent (the hashing is performed on the payload of the packet; see paragraph 0046. The payload of the packet does not define the path a packet will take). It would have been obvious to a person of ordinary skill in*

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the art at the time of the invention to use Milliken's hashing method in Aguilera's invention to detect network worms and viruses (Milliken, title).

8. For **claim 10**, Aguilera discloses the use of hashing functions (see paragraph 0012).

Aguilera does not disclose the use of CRC checks. Milliken discloses *the data from said packet excludes header and trailer information* (the hashing is performed on the payload of the packet; see paragraph 0046). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use Milliken's hashing method in Aguilera's invention to detect network worms and viruses (Milliken, title).

18. For **claims 18, 47, 61 and 74**, Aguilera discloses *a first one of said DPMs is designated as a current DPM* (the bit array **26** is assigned to current epoch 7832; see figure 2), *and a second one of said DPMs is designated as a previous DPM* (the bit array **28** is assigned to the previous epoch 7831; see figure 2 and paragraph 0016).

19. For **claim 23**, Aguilera discloses *said PSV generator is coupled to each of said DPMs* (the CPU **62** is coupled to the bit arrays of the bloom filter via RAM **66**; see paragraph 0027).

20. For **claim 27**, Aguilera discloses *a packet summary value (PSV) generator* (CPU **62** executing software code; see paragraph 0027), *wherein said DPM (bloom filter) is coupled to said PSV generator* (the bit arrays **26, 28 and 30** of the bloom filter are stored in RAM **66**; see paragraph 0027. Figure 5 shows CPU **62** is coupled to RAM **66**), *said PSV generator is configured to, responsive to receiving a packet, generate a hash value* (see paragraph 0017).

Aguilera does not disclose the source of the hashed value. Milliken discloses a hash value that is generated by *extracting data from said packet* (hash values are generated from the payload of a packet; see paragraph 0046), *and calculate a PSV using said data from said packet by virtue of*

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being configured to generate hashed data by hashing said data from said packet using a hashing function (the payload is used to generate a hash value; see paragraph 0046), wherein said PSV corresponds to said hashed data, said DPM is configured to receive said PSV (the hash values are stored in hash memory 320; see paragraph 0050). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use Milliken's hashing method in Aguilera's invention to detect network worms and viruses (Milliken, title).

21. For **claim 28**, Aguilera discloses *said DPM is further configured to indicate that said PSV matches a PSV stored in said DPM (see figure 1 step 14).*

22. For **claim 30**, Aguilera discloses *a packet processing unit, said packet processing unit comprising said PSV generator (CPU 62 executes software to implement the hashing functions; see paragraph 0027).*

23. For **claims 37, 56 and 69**, Aguilera discloses *indicating said packet is said duplicate packet, if said determining determines said packet is said duplicate packet (if a hash value matches all bits in a bloom filter, the packet is considered to be a duplicate; see paragraph 0013 and figure 1).*

24. For **claim 38**, Aguilera suggests *dropping said packet, if said packet is said duplicate packet (if the packet is a duplicate, the server does not process the request; see figure 1).*

25. For **claims 39, 57 and 70**, Aguilera discloses *comparing said PSV to said first DPM field, and comparing said PSV to said second DPM field (see item 14 of figure 1).*

26. For **claims 42, 58 and 71**, Aguilera suggests *selecting a bit entry of said first DPM field based on said PSV a and selecting a bit entry of said second DPM field based on said PSV (the*

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CPU **62** searches through all the bit arrays in the bloom filter to find a match; see figure 1 step 14).

27. For **claim 44**, Aguilera discloses *setting said value of said corresponding bit entry of said first plurality of bit entries if said packet is not said duplicate packet* (see figure 1 step 18).

28. For **claim 45, 59 and 72**, Aguilera discloses *a packet summary value (PSV) generator* (CPU **62** executing software code; see paragraph 0027), *wherein said DPM* (bloom filter) *is coupled to said PSV generator* (the bit arrays **26, 28 and 30** of the bloom filter are stored in RAM **66**; see paragraph 0027. Figure 5 shows CPU **62** is coupled to RAM **66**), *said PSV generator is configured to, responsive to receiving a packet, generate a hash value* (see paragraph 0017). Aguilera does not disclose the source of the hashed value. Milliken discloses a hash value that is generated by *extracting data from said packet* (hash values are generated from the payload of a packet; see paragraph 0046), *and calculate a PSV using said data from said packet by virtue of being configured to generate hashed data by hashing said data from said packet using a hashing function* (the payload is used to generate a hash value; see paragraph 0046), *wherein said PSV corresponds to said hashed data, said DPM is configured to receive said PSV* (the hash values are stored in hash memory **320**; see paragraph 0050); *said PSV generator* (hash processor **310**) *is configured to calculate said PSV using a cyclic redundancy check (CRC) calculation* (the hashing algorithms used by the hash processor **310** include CRC; see paragraph 0047) *and said data from said packet is path-independent* (the hashing is performed on the payload of the packet; see paragraph 0046). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use Milliken's hashing method in Aguilera's invention to detect network worms and viruses (Milliken, title).

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29. For **claims 48, 62 and 75**, Aguilera suggests *determining if a field of said previous DPM indicates said packet is said duplicate packet, using said PSV; and determining if a field of said current DPM indicates said packet is said duplicate packet, using said PSV* (the hash value is used to search all the bit arrays in the bloom filter for a match; see figure 1 item 14).

30. For **claims 49, 63 and 76**, Aguilera suggests *indicating said packet is not said duplicate packet, if said field of said previous DPM indicates said packet is not said duplicate packet and said field of said current DPM indicates said packet is not said duplicate packet, and indicating said packet is said duplicate packet, otherwise* (if no bit array in the bloom filter matches the hash value, the request is not considered to be a duplicate request; see figure 1).

31. **Claims 24, 31-35 50-54, 64-67 and 77-80** are rejected under 35 U.S.C. 103(a) as being unpatentable over Aguilera in view of Milliken and Cornett as applied to **claims 23, 30, 47, 61 and 74 respectively** above, and further in view of Khansari et al. (US 6,446,131), hereinafter referred to as Khansari.

32. For **claim 24**, the combination of Aguilera, Cornett and Milliken does not disclose the use of DPM addressing and control units. Khansari teaches *a DPM addressing unit coupled to said DPM* (see col. 7 lines 50-56; The addressing unit provides the PSV to the table.) *and a DPM control unit, coupled to control the DPM addressing unit and the DPM* (see col. 7 lines 39-45; The control unit controls the duplicate packet detection/processing.). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use DPM addressing and control units in Aguilera's invention to indicate when duplicate packets have been received (Khansari, col. 7 lines 50-56).

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33. For **claim 31**, the combination of Aguilera, Cornett and Milliken discloses *said DPM bank comprises said DPM* (bit arrays **26, 28 and 30** are stored in a bloom filter; see paragraph 0016). The combination of Aguilera, Cornett and Milliken does not disclose the use of hit signals. Khansari teaches the DPM bank comprises the DPM (see col. 7 lines 43-45), the DPM bank is configured to generate a hit signal (see col. 7 lines 46-50), and the DPM bank is coupled to receive the PSV from the PSV generator (see col. 7 lines 50-55) and to provide the hit signal to the packet processing unit (see col. 7 lines 33-43). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use hit signals in Aguilera's invention to indicate when duplicate packets have been received (Khansari, col. 7 lines 50-56).

34. For **claim 32**, the combination of Aguilera, Cornett and Milliken discloses *a value of said PSV matches a value stored in a one of said DPMs* (see figure 1 step 14). The combination of Aguilera, Cornett and Milliken does not disclose the use of hit signals. Khansari discloses *said hit signal* (see col. 7 lines 46-50). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use hit signals in Aguilera's invention to indicate when duplicate packets have been received (Khansari, col. 7 lines 50-56).

35. For **claim 33**, the combination of Aguilera, Cornett and Milliken discloses *bit values of said PSV match bit values stored in corresponding locations in a one of said DPMs* (see figure 1 step 14). The combination of Aguilera, Cornett and Milliken does not disclose the use of hit signals. Khansari discloses *said hit signal* (see col. 7 lines 46-50). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use hit signals in Aguilera's invention to indicate when duplicate packets have been received (Khansari, col. 7 lines 50-56).

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36. For **claim 34**, the combination of Aguilera, Cornett and Milliken does not disclose a processor that processes packets using hit signals. Khansari discloses *the packet processing unit is configured to process the packet using the hit signal* (see col. 7 lines 34-36). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use hit signals in Aguilera's invention to indicate when duplicate packets have been received (Khansari, col. 7 lines 50-56).

37. For **claim 35**, the combination of Aguilera, Cornett and Milliken does not disclose the dropping of packets based on hit signals. Khansari discloses *the processing includes causing the packet processing unit to drop the packet based on the hit signal* (see Khansari, col. 7 lines 34-36). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use hit signals in Aguilera's invention to indicate when duplicate packets have been received (Khansari, col. 7 lines 50-56).

38. For **claims 50, 64 and 77**, the combination of Aguilera, Cornett and Milliken suggests *using multiple DPMs and designating a current DPM as well as inactive and previous DPMs* (see Aguilera, paragraph 0016 and figure 2).

9. The combination of combination of Aguilera and Milliken does not disclose how the DPM is portioned. Khansari teaches *designating a portion of the table as inactive or previous and using a portion as the current DPM* (see col. 8 lines 1-5). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use active and inactive fields in the DPM to indicate duplicates in Aguilera's invention to be able to age the DPM table entries (Khansari, col. 7 lines 64-65).

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10. For **claim 51**, the combination of Aguilera, Cornett and Milliken suggests *using multiple DPMs and designating a current DPM as well as inactive and previous DPMs* (see Aguilera, paragraph 0016 and figure 2).

11. The combination of Aguilera, Cornett and Milliken does not disclose the use of DPM portions. Khansari teaches *clearing the inactive portion of the DPM prior to using it as the current DPM* (see col. 8 lines 1-5). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use active and inactive fields in the DPM to indicate duplicates in Aguilera's invention to be able to age the DPM table entries (Khansari, col. 7 lines 64-65).

12. For **claims 52, 54, 65, 67, 78 and 80**, the combination of Aguilera, Cornett and Milliken suggests *using multiple DPMs and designating a current DPM as well as inactive and previous DPMs* (see Aguilera, paragraph 0016 and figure 2).

13. The combination of Aguilera, Cornett and Milliken does not disclose the use of active and inactive DPM portions. Khansari teaches the act of *periodically reducing the DPM by selecting the inactive and active portions of the DPM* (see col. 8 lines 1-5). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use active and inactive fields in the DPM in Aguilera's invention to be able to age the DPM table entries (Khansari, col. 7 lines 64-65).

39. For **claims 53, 66 and 79**, the combination of Aguilera, Cornett and Milliken does not disclose a period for periodically selecting DPM fields. Khansari further teaches *a period of the performing periodically is such that the period is greater than an expected differential between duplicate packet arrivals and the period is less than a time between packet retransmissions* (see

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col. 8 lines 6-14). It would have been obvious to a person of ordinary skill in the art at the time of the invention to periodically select DPM fields in Milliken's invention to be able to age the DPM table entries (Khansari, col. 7 lines 64-65).

Response to Arguments

40. Applicant's arguments with respect to **claims 1, 4-10, 17-45, 47-59, 61-72, 74-81, 83, 85 and 87-93** have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

41. **Claims 7-8, 19-22, 25-26, 40-41, 43 and 93** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

42. **Claims 81, 83, 85, 87 and 88-92** would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEFFREY M. RUTKOWSKI whose telephone number is (571)270-1215. The examiner can normally be reached on Monday - Friday 7:30-5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeffrey M Rutkowski/
Examiner, Art Unit 2473

/KWANG B. YAO/
Supervisory Patent Examiner, Art Unit 2473